

1. A pressure regulation device for selectively regulating the flow of a fluid between a lower pressure sink of a breast pump and a higher pressure source, the pressure regulation device comprising:

a valve body oriented with respect to a valve seat to selectively provide fluid communication between a lower pressure sink of a breast pump and a higher pressure source; and

an actuator operatively coupled to at least one of the valve body and the valve seat to manipulate the orientation of the valve seat with respect to the valve body;

wherein the actuator is repositionable to selectively manipulate a volumetric flow of fluid between the higher pressure source and the lower pressure sink by varying the proximity of the valve seat with respect to the valve body.

2. The pressure regulation device of claim 1, where in the valve body moves vertically with respect to the valve seat.

3. The pressure regulation device of claim 1, wherein the actuator is manipulated in one of a first plane and a second plane and the movement of the valve body with respect to the valve seat is in a third plane.

4. The pressure regulation device of claim 1, wherein the valve body includes a needle repositionable with respect to the valve seat.

5. The pressure regulation device of claim 1, wherein the actuator is coupled to the valve body and rotated coaxially with the valve body to manipulate the position of the valve body with respect to the valve seat.

6. A pressure regulation device for selectively regulating the flow of a fluid between a lower pressure sink of a breast pump and a higher pressure source, the pressure regulation device comprising:

a valve body oriented and biased with respect to a valve seat to selectively provide fluid communication between a lower pressure sink of a breast pump and a higher pressure source; and

an actuator operatively coupled to at least one of the valve body and the valve seat to manipulate the orientation of the valve seat with respect to the valve body;

wherein the actuator is repositionable to selectively manipulate a volumetric flow of fluid between the higher pressure source and the lower pressure sink by varying the bias of the valve body with respect to the valve seat.

7. The pressure regulation device of claim 6, wherein decreasing the bias increases the volumetric flow of fluid from the higher pressure source to the lower pressure sink.

8. The pressure regulation device of claim 6, wherein increasing the bias decreases the volumetric flow of fluid from the higher pressure source to the lower pressure sink.

9. The pressure regulation device of claim 6, wherein the lower pressure sink is developed at least in part by a piston traveling within a conduit in at least one of an arcuate path and a linear path.

10. The pressure regulation device of claim 9, wherein the piston is manually repositioned within the conduit by a user.

11. The pressure regulation device of claim 6, wherein:

the valve body is biased by a helical body coupled thereto;

the actuator is coupled to the valve body;

the valve body is co-axial with the helical body.

12. The pressure regulation device of claim 11, further comprising a breast pump body having a breast interface conduit adapted to create a fluidic seal between an outer circumferential area of the breast interface conduit and a breast, the breast body further

including a lower pressure sink operative to draw milk through the breast interface conduit and into a milk reservoir.

13. The pressure regulation device of claim 12, wherein the breast pump body includes the valve seat.

14. The pressure regulation device of claim 12, wherein the actuator is rotated axially with respect to the valve body.

15. The pressure regulation device of claim 12, wherein the helical body, actuator, and at least a portion of the valve body are external to the breast pump body.

16. The pressure regulation device of claim 14, wherein rotation of the actuator is operative to increase or decrease the bias attributable to the helical body coupled to the valve body.

17. A pressure regulation device for selectively regulating the flow of a fluid between a lower pressure sink of a breast pump and a higher pressure source, the pressure regulation device comprising:

    a valve body oriented with respect to a valve seat to selectively provide fluid communication between a lower pressure sink of a breast pump and a higher pressure source; and

    an actuator operatively coupled to at least one of the valve body and the valve seat to manipulate the orientation of the valve seat with respect to the valve body;

    wherein the actuator transforms rotational movement into linear movement of at least one of the valve body and the valve seat to reposition the valve body with respect to the valve seat.

18. A breast pump comprising:

    an interface adapted to create a fluidic seal between a circumferential portion of the interface and a breast;

a reservoir in fluid communication with the interface for receiving milk drawn from the breast and passing by the interface;

a sink in fluid communication with the interface, where the sink induces a reduced pressure approximate the interface to draw milk from the breast and past the interface and into the reservoir; and

a pressure regulator in fluid communication with the sink to regulate the reduced pressure approximate the interface;

wherein the pressure regulator includes a valve seat and a valve body that are selectively repositionable to manipulate the reduced pressure approximate the interface by varying the proximity of the valve seat with respect to the valve body.

19. The breast pump of claim 18, wherein the sink includes a chamber comprising a conduit having a piston riding therein, the piston being repositionable within the conduit to induce the reduced pressure approximate the interface.

20. The breast pump of claim 19, wherein the piston travels within the conduit in at least one of an arcuate path and a liner path.

21. The breast pump of claim 18, wherein the pressure regulator includes a dial actuator being repositionable in at least one of a clockwise direction and a counterclockwise direction to vary the proximity of the valve seat with respect to the valve body .

22. The breast pump of claim 19, wherein the piston is coupled to a handle being repositionable by a user.

23. A pressure regulation device for selectively regulating the flow of a fluid between a lower pressure sink within a breast pump and a higher pressure source, the pressure regulation device comprising:

a valve plug circumferentially bounded, at least in part, by a housing adapted to contact a helical body to bias the valve plug with respect to a valve seat where the

position of the helical body with respect to the housing determines at least in part the position of the valve plug with respect to the valve seat; and

an actuator operatively coupled to the helical body to manipulate the position of the valve plug with respect to the valve seat, thereby selectively providing fluid communication between a lower pressure sink of a breast pump and a higher pressure source.

24. The pressure regulation device of claim 23, wherein the helical body includes a helical cam surface adapted contact the housing operative to manipulate the position of the valve plug with respect to the valve seat.

25. The pressure regulation device of claim 24, wherein the actuator is rotatably actuated.

26. The pressure regulation device of claim 23, wherein combination of the actuator, the helical body, and the housing transform rotational movement into linear movement of the valve plug with respect to the valve seat.

27. The pressure regulation device of claim 26, wherein the housing and helical body each accommodate vertical throughput of the actuator.

28. The pressure regulation device of claim 27, wherein the helical body is inhibited from rotation adjacent to the housing of greater than 360 degrees.

29. The pressure regulation device of claim 27, wherein the valve plug is repositionable with respect to the valve seat to accommodate a plurality of volumetric flow rates of fluid between the higher pressure source and the lower pressure sink.

30. A pressure regulation device for selectively regulating the flow of a fluid between a lower pressure sink within a breast pump and a higher pressure source, the pressure regulation device comprising a dial actuator including an appendage coupled to a valve

body, at least one of the appendage and the valve body having a helical body mounted thereto, the helical body biasing the dial actuator, where rotation of the dial actuator varies the position of the valve body with respect to a valve seat, having an orifice therein, for selectively regulating a volumetric flow of a fluid between a lower pressure sink within a breast pump and a higher pressure source.

31. The pressure regulation device of claim 30, further comprising a housing adapted to be mounted to the breast pump, the housing includes a cavity occupied at least in part by the helical body, where an adjacent surface of the housing interfaces with the helical body such that rotation of the helical body with respect the adjacent surface varies the position of the valve body with respect to a valve seat.

32. The pressure regulation device of claim 31, wherein the housing is a cylindrical body having at least one fastener adapted to interface with the breast pump to attach the housing thereto, wherein the adjacent surface includes at least one protrusion adapted to contact the helical body.

33. The pressure regulation device of claim 32, wherein the helical body includes a disc with a contoured surface adapted to interface with the adjacent surface of the housing, the contoured surface having an opening therethrough for allowing throughput of at least one of the appendage and the valve body, the disc further including at least two helical appurtenances opposite the contoured surface that are adapted to interface with the breast pump.